



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,058	01/30/2001	Raghunath Rao	1075-CA (p125US0	6103

7590

12/24/2003

James J. Murphy, Esq.
WINSTEAD SECHREST & MINICK
5400 Renaissance Tower
1201 Elm
Dallas, TX 75270

EXAMINER

NGO, CHUONG D

ART UNIT

PAPER NUMBER

2124

DATE MAILED: 12/24/2003

2

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

09/773,058

Applicant(s)

RAO ET AL.

Examiner

Chuong D Ngo

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAIL OF ACTION

1. The disclosure is objected to because of the following informalities: the status of the co-pending applications cited in the Cross-Reference on the first page of the specification should be updated.

2. Claims 1-7, 10, 12, 13 and 20-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 1, "B^k", lines 4 and 5, should be --B^{kN}--.

As per claim 10, "B^{kN}", line 1, should be --B^{kN}--.

As per claim 12, it is indefinite as to what "x" is. Claims 20-22 also have the same problems.

3. 35 U.S.C. § 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title".

4. Claims 1-26 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-21 clearly recite a calculation process for computing a particular function such as $x^{M/N}$ in accordance with a mathematical algorithm. Claims 22-26 recite an apparatus for implementing the above process, but fail to limit the apparatus to any particular structure other than processing circuit in general. Indeed, any apparatus implementing the underlined process would result in an apparatus as claimed. In order for such a process or a claimed non-specific apparatus implementing the underlined process to be statutory, the claims must include either a step or means that results in a physical transformation outside the computer or a limitation to a practical application. However, it is clear from the claims that the claims merely recite step or non specific means for data computation and manipulation in performing a mathematical function. The input is a number and output is also a number. The claims fail to recite any step or means that results in a physical transformation outside the computer, that includes a limitation to a practical application, or that requires a specific computer to implementing the claimed process. Accordingly, claims 1-26 are clearly directed to a non-statutory subject matter.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371⁶ of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3,6-11,14-19 and 22-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyasaka et al (6,304,890).

Miyasaka discloses a calculation of $X^{a/b}$ including partitioning the range of x into a plurality of intervals n , determining which interval n the value of x falls within, dividing x by a normalization factor $2^{(b*n)}$ to obtain the normalized value x' , computing $x'^{(a/b)}$ by a lookup table, and renormalizing by multiplying $x'^{(a/b)}$ by $2^{(a*n)}$ as claimed.

8. Claims 4 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka et al (6,304,890) as applied to claims 1,16 and 19 above, and further in view of Dworkin et al. (5,604,691).

It is noted that Miyasaka et al. does not disclose the computing $x^{(a/b)}$ by series expansion. However, Dworkin et al. suggest by figure 1 a computation of a function by series expansion that reduces the amount of memory space (see col. 2, lines 45-51). It would have been obvious to a person of ordinary skill in the art to computing $x^{(a/b)}$ by series expansion as suggested by Dworkin et al. in order to reduce the amount of memory space required to perform the function.

9. Claims 5,12,13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka et al (6,304,890) as applied to claims 1,8,16 and 19 above, and further in view of Dworkin et al. (5,600,681).

It is noted that Miyasaka et al. does not disclose the computing $x^{(a/b)}$ by interpolation. However, Dworkin et al. suggest by figures 1 and 2 a computation of a function by an interpolation method that reduces the amount of memory space (see col. 2, lines 46-52). It would have been obvious to a person of ordinary skill in the art to computing $x^{(a/b)}$ by interpolation method as suggested by Dworkin et al. in order to reduce the amount of memory space required to perform the function.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

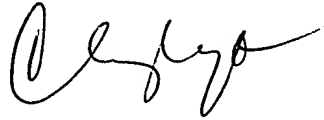
Serial No. 09/722,086
Art Unit: 2124

-6-

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong D. Ngo whose telephone number is (703) 305-9764. The examiner can normally be reached on Tuesday-Friday from 7:30 AM to 6:00 PM.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Chuong D. Ngo
Primary Examiner
Art Unit 2124

12-29-2003.